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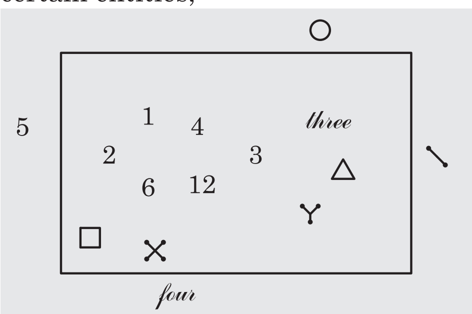
## Glossary of Ontology

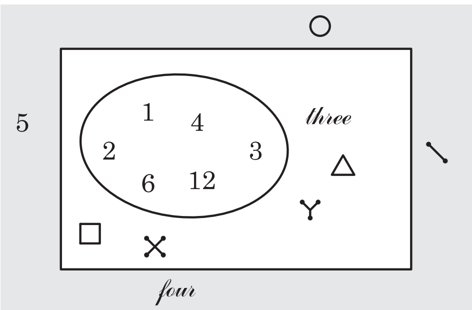
In the previous issue for this volume a naive introduction to ontology was made. Now is the time to further clarify the terms already used and to introduce others.

To be and being: **1.** For the verb “to be” there are two cases: **a.** that it has no meaning, as when it is said that “3 is a divisor of 12” (“3, divisor of 12”), i.e. *to be something,* or **b.** that it has the meaning of *to exist,* as when it is said that “3 is”, i.e. *to be in an abstract sense,* in which case it cannot be omitted. **2.** For the noun “being,” accordingly, there are two possibilities: **a.** that it stands for *something that is not hidden,* i.e. *something that belongs to a set,* or **b.** that it means *something that is,* i.e. *something that exists.* In either case, the word “being” is the equivalent of *entity*. Therefore, entities are beings. In set theory, entities are called *elements*. It is not advisable to use the word “thing” as a synonym to the noun “being” since doing so would restrict its meaning. Observe that the combination of the noun in the sense **2b** and the verb in the sense **1b** lead to the expression: “The being is.”

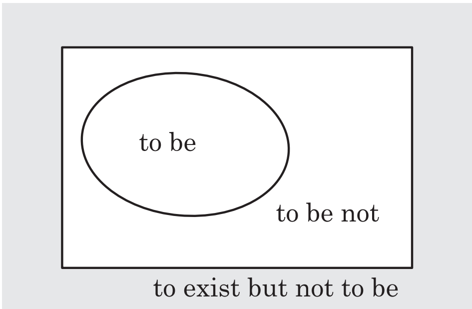
To be, to be not and not to be: (Here, the verb “to be” is used as described in **1a**.) The human mind performs two consecutive actions: (i) it focuses on certain entities;




and (ii) it groups some of them by applying a selection criterion.




The first action is unavoidable, given the limitations of the mind, to which some self-imposed restrictions to consider only certain specific entities may be added. The second is the result of comparison, convenience or convention. Consequently, the whole is divided into three parts: that of *to be* (or *to be in a direct way*), that of *to be not* (or *to be in a indirect way*) and that of *to exist but not to be.*




The universe (white region) is the domain of being. The elements outside of it (grey region) exist (“stay there”) but they not are, since they have not been considered and no definition (selection criteria) has been applied to them. That is, they stand in the whole, but have no name, they stay undefined. Note that in this diagram: the whole has no delimiting line because its scope cannot be determined, it is not a set; and, of course, that which does not exist cannot be represented.

Essence and existence: From what was said in the two previous paragraphs it can be deduced that all entities *are* (in the sense **1b**, that is, *they exist*), but not all of them *are something* (in the sense **1a**, that is, *they belong*). To be (in the sense **1a**) is more than to exist, because to be, something must exist and stay in a universe where a definition has been made. *Existence* is what all entities have in common, because they are; *essence* is what all entities that are something have. Essence is more than mere existence.

Chaos, demiurge and cosmos: In the preceding paragraphs, particularly the last one, the importance of applying a criterion (definition) is shown, since that is the origin of the essence of entities (those that are something). Whoever defines a set puts order (casts light) into a part of the whole (grey), *chaos,* and creates an ordered universe (white), the *cosmos.* The organizer of entities, who raises them from the state of being into the state of being something, is called *the demiurge.*

Ontology and semiology: Ontology is that part of philosophy which deals with the relationship between entities (in the sense **2a**) and their definitions.

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MAIN ARTICLE

### To be and to belong

Defintions are the undertaking of ontology, where they are studied one by one. Confronting definitions engages the field of dialectics, where the relative position of sets is determined. Logic completes the circle, acting upon the sets to obtain new (compounded) definitions, its purpose is to decide whether an element does or does not belong to the resulting set, that is, whether it is or it is not.

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DIDACTIC NOTE

### The three forks
**on the road of being**

The translation of two of the strophes in Parmenides’ poem has forced us to dedicate two issues to the subject of being. Here, the meaning of the words “whole,” “homogenous” and “true” are clarified. In the first strophe, the author speaks of that which exists, in the second, of that which has a name and that which is hidden. Both strophes correspond to different forks on the road of being.

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BACK PAGE

INTERVIEW WITH JOTAJOTA

### Parmenides’ Legacy

At the edge of the lake in Independence Park, in the city of Rosario—an appropriate setting for the treatment of classical subjects—Juan José Luetich speaks to us about the oldest work in Western philosophy.

BIOGRAPHICAL NOTE

### Juan José Luetich

Our organization’s Editor of Serial Publications, he is the creator of a complete system of ideas which spans philosophy, humanities, mathematics, science, art and religion.

PRINTING NOTES

### About this publication

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# To be and to belong

**The definition** of a set is always arbitrary. That fact gives them the double character of *unjustifiable* and *unquestionable*. If a definition does not give rise to more than one interpretation, it cannot be objected. That would require the fulfillment of two conditions: (1) that each element in the universe is clearly within or without the set; and (2) that the name of the set has not been used for another one with a non-equivalent definition.

Arbitrariness is a characteristic of the definitions for entities of every kind, including mathematical ones. Let us consider the aforementioned case of the natural divisors of 12. If the meaning for "natural divisor" were not clear, two interpretations would be possible.

$$A_1 = \{1, 2, 3, 4, 6, 12\}$$

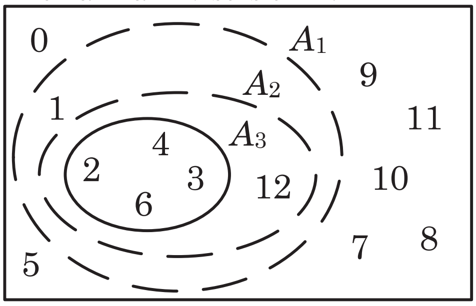
$$A_2 = \{2, 3, 4, 6, 12\}$$

Each enumeration correspond respectively to the following definitions: (A1) *Natural numbers that divide 12 and leave no remainder;* (A2) *Natural numbers that reduce 12.* The second definition may seem whimsical, but not if you look at the etymology of the word "divide," because the act of dividing should always arrive at a quotient that is smaller than the dividend. Dividing by 1 is like adding 0: strictly speaking, neither is either dividing or adding. On the other hand, using the same name for either set would invalidate both definitions; therefore different symbols are used, $A_1$ and $A_2$. Giving an unequivocal definition to the divisors of 12; one that meets both of the mentioned conditions, is an ontological task. Both definitions are valid. Arguments could be given in favor of one or the other, but that is not the purpose of ontology.

When comparing the two definitions in the previous paragraph, yet another definition for "divisor of 12" becomes apparent. In fact, in definition $A_1$, the numbers that result from dividing 12 by each element of the set also belong to the set: 12/1 = 12, 12/2 = 6, 12/3 = 4, 12/4 = 3, 12/6 = 2, and 12/12 =1. In definition $A_2$ this is no longer true since the element 1 has been eliminated, which makes the definition less symmetric. The solution would then be to eliminate the element 12 too.

$$A_3 = \{2, 3, 4, 6\}$$

Thus arriving at the following definition: ($A_3$) *Natural numbers that reduce 12 such that the results also belong to the set.* The following diagram illustrates the definition variants for "the natural divisors of 12."



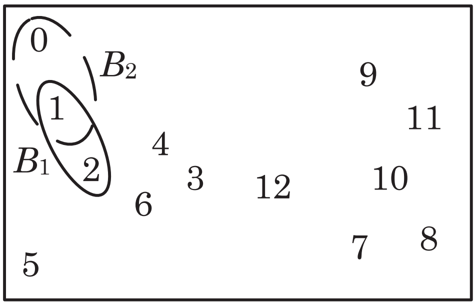

ontology

Now consider the following definition: The first two natural numbers. This definition does not answer whether or not zero should be considered a "natural number."

$$B_1 = \{1, 2\}$$

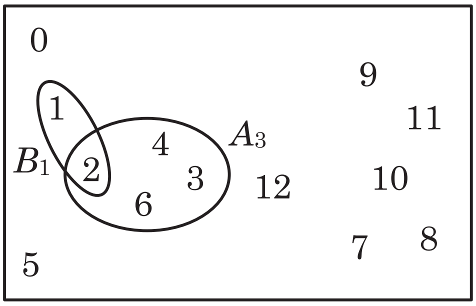
$$B_2 = \{0, 1\}$$

The following diagram illustrates the definition variants for "the first two natural numbers."




ontology

Once the definitions have been made—the field of ontology—the relative position of the sets—the field of dialectics—can be studied.




dialectics

The dialectic game begins when a universe contains more than one definition. Ontology makes many definitions, but does so one by one, without differentiating them from one another and therefore not justifying them.

Once the definitions are chosen (those with unbroken lines) and brought together in the same universe, the sets can be used in operations. And thus we enter into the field of logic, the *third philosophy*. For example, we could ask what elements of set $A_3$ do not belong to $B_1$. To answer this question, the elements that are common to $A_3$ and $\sim B_1$ must be found, that is, the elements resulting from

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FRONT PAGE

## Glossary of Ontology

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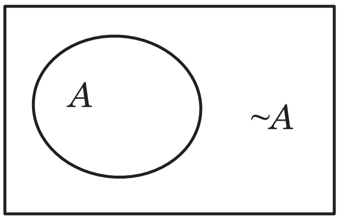
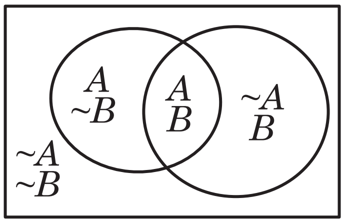
Ontology is closely related to semiology, which studies the relationship between signs and their meanings. The latter goes as far as not distinguishing between concrete and abstract entities. They all show signals that we can perceive with our senses. A set could contain a brick and a number, provided that a definition has placed them there. With ontology, the following question could be raised: What comes first, the being or the definition? However, this question is pointless because: an entity, in the sense **2b** does not become an entity in the sense **2a** until a definition is applied; and a definition is not possible without a universe and elements with shared characteristics.

Ontological tables: Are tables that can serve the function of Venn diagrams. In these tables, the elements of a set are on the same column or row while on the diagrams they are within an enclosing line. In both cases, no elements can be placed over the lines and the names of the sets are used as labels. The following are the diagram and table representations used in the case of a universe with only one definition, *A*.




| | |
|---|---|
| *A* | *~A* |

In a universe with two definitions, A and *B*, the following representations are used.




| | | |
|---|---|---|
| | | |
| | *A* *B* | *~A* *B* |
| | *A* *~B* | *~A* *~B* |

Tables with more than one definition are known as *Carroll diagrams,* named after the English writer, mathematician and logician Lewis Carroll (1832-1898).